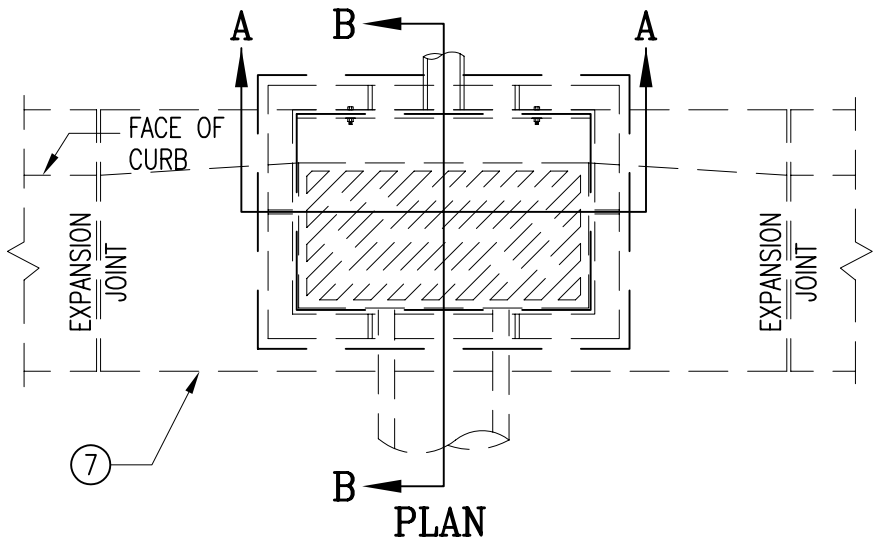
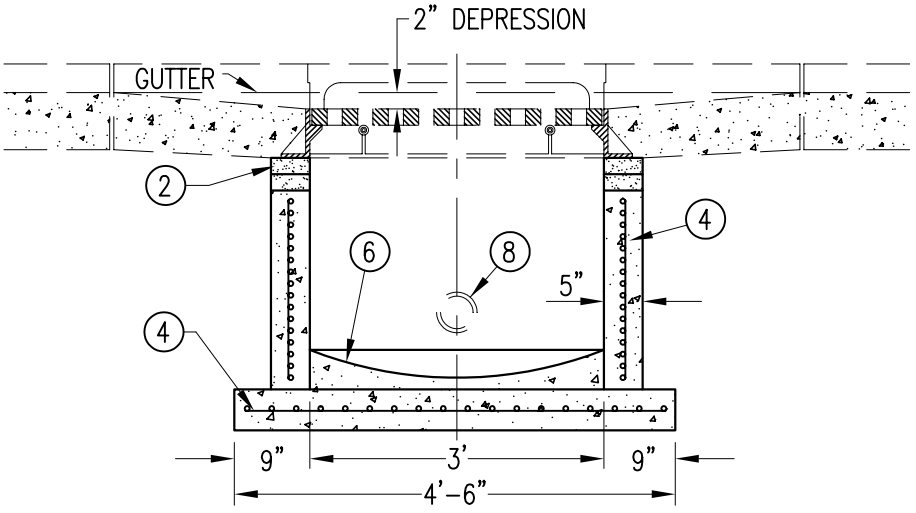
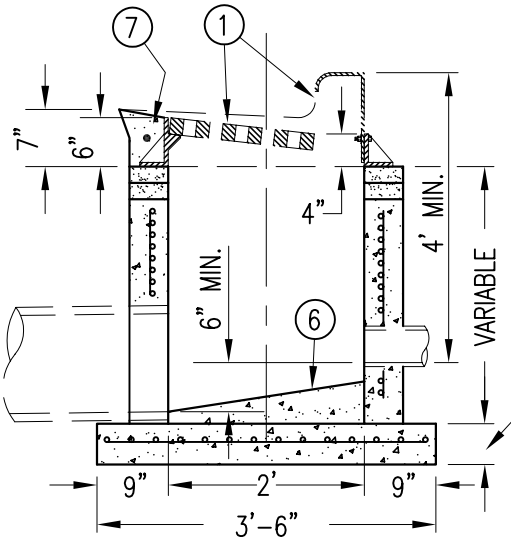


PLAN



SECTION A–A



SECTION B–B

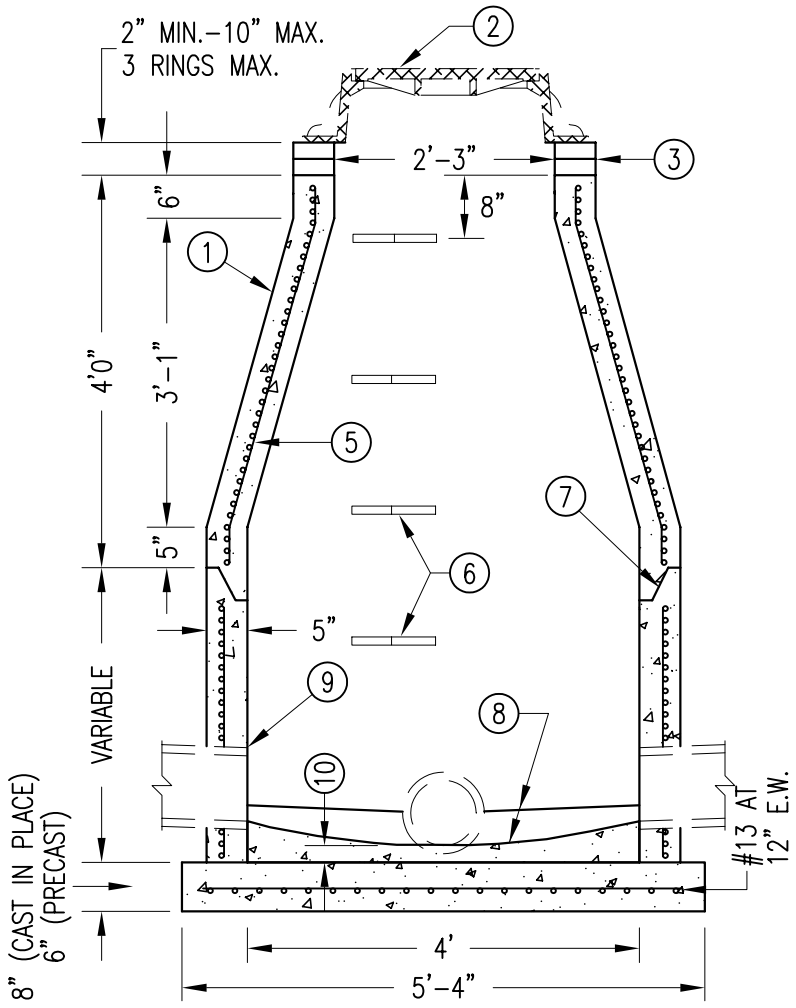
NOTES

1. REFER TO PLANS AND S.D.P. 1–11 FOR TYPE OF FRAME, GRATE AND CURB BOX.
2. ADJ. RINGS SHALL BE PER S.D.P. 1–12, AND BE FULLY MORTARED. HEIGHT OF RINGS SHALL BE 2" MIN.–10" MAX. WITH 3 RINGS MAXIMUM.
3. STRUCTURE SHALL BE PRECAST CONCRETE.
4. REINFORCING SHALL BE A MINIMUM OF SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT EACH DIRECTION.
5. NO STEPS REQUIRED.
6. PROVIDE CONCRETE FILLETS TO FIT BOTTOM PORTION OF STRUCTURE AND TO DIRECT THE FLOW TO OUTLET AT MIN. SLOPE OF 1/4" PER FOOT. MINIMUM CONCRETE THICKNESS AT OUTLET 1 1/2".
7. SEE S.D.P. 2–01, 2–05 AND 2–06 FOR CURB, GUTTER AND REINFORCEMENT DETAILS AT CATCH BASINS.
8. SEE S.D.P. 1–08 FOR SUBDRAIN DETAILS AT CATCH BASINS.

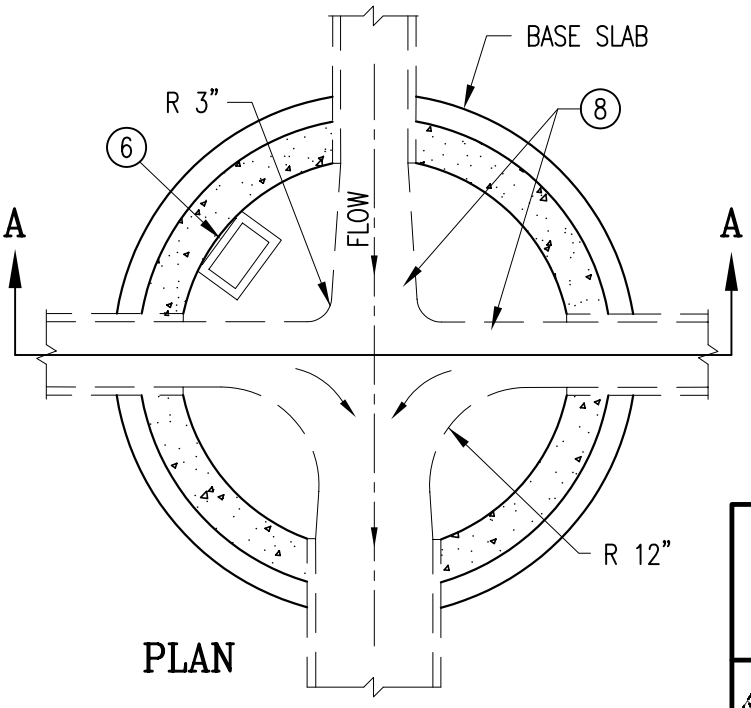
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

STRUCTURE TYPE 1

ASST. CITY ENGINEER	DIRECTOR			
SHT 1 OF 1 SHTS	DATE REVISED 6/15/07	PLATE NO. 1–01	REV. G	



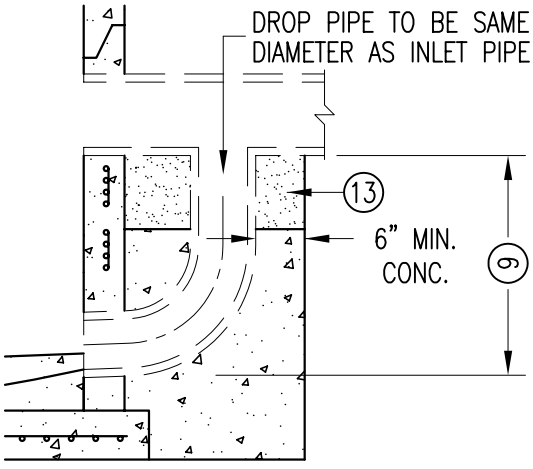
SECTION A–A



PLAN

NOTES

1. CONE SHALL BE CONCENTRIC.
2. REFER TO PLANS AND S.D.P. 1–11 FOR CASTING REQUIRED. CASTING SHALL BE BOLTED TO CONCRETE IN FIELD APPLICATIONS.
3. ADJ. RINGS SHALL BE PER S.D.P. 1–12, AND BE FULLY MORTARED.
4. STRUCTURE SHALL BE PRECAST CONCRETE.
5. REINF. SHALL BE A MIN. OF A SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT IN EACH DIRECTION.
6. STEPS ARE SPACED 16" O.C. MAX. AND SHALL CONFORM TO MN/DOT S.P. 4180 J. STEPS SHALL BE ORIENTED ON THE UPSTREAM LEFT SIDE AS SHOWN.
7. ALL JOINTS TO BE GASKETED. REFER TO MN/DOT SPEC. 3726.
8. PROVIDE CONCRETE FILLETS TO FIT BOTTOM PORTION OF PIPE TO DIRECT FLOW TO OUTLET AT 1/4" PER FT. MIN. SLOPE. SHAPE CHANNELS TO HAVE SMOOTH ROUND INVERTS. DEPTH OF CHANNELS SHALL NOT BE LESS THAN 1/2 THE PIPE SIZE.
9. DROP INLET USED FOR SAN. SEWER DROPS GREATER THAN 1.0 FT.
10. MINIMUM CONCRETE THICKNESS AT LOWEST INVERT SHALL BE 1 1/2".
11. STRUCTURE TYPE 3 OR 3A REQUIRED FOR NEW SANITARY SEWER CONSTRUCTION.
12. MAX. PIPE SIZE:
    24" FOR STRAIGHT THRU TO 135°
    18" FOR 90° BEND
13. DROP PIPE TO BE ENCASED IN GROUT IF FLEXIBLE PIPE, OR GRANULAR ENCASEMENT IF RIGID PIPE IS USED.



TYPE 2A FOR DROP–INLET

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

STRUCTURE TYPES 2 AND 2A

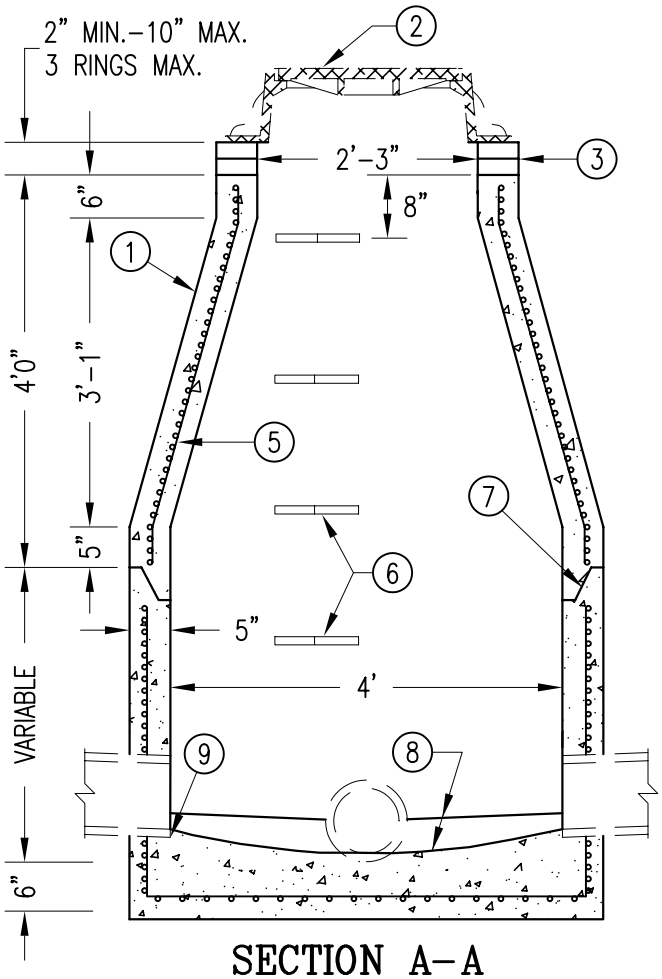
ASST. CITY ENGINEER

DIRECTOR

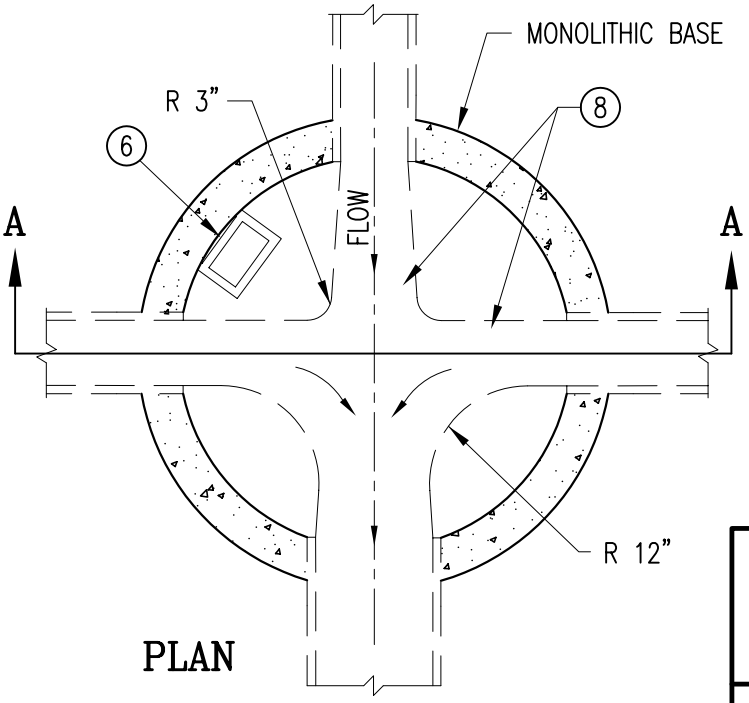
SHT 1 OF 1 SHTS	DATE REVISED 6/15/07	PLATE NO. 1–02	REV. G

NOTES

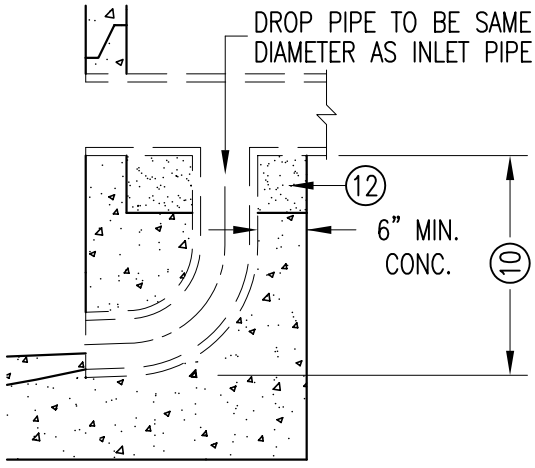
1. CONE SHALL BE CONCENTRIC.
2. REFER TO PLANS AND S.D.P. 1–11 FOR CASTING REQUIRED. CASTING SHALL BE BOLTED TO CONCRETE IN FIELD APPLICATIONS.
3. ADJ. RINGS SHALL BE PER S.D.P. 1–12, AND BE FULLY MORTARED.
4. STRUCTURE SHALL BE PRECAST CONCRETE.
5. REINF. SHALL BE A MIN. OF A SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT IN EACH DIRECTION.
6. STEPS ARE SPACED 16" O.C. MAX. AND SHALL CONFORM TO MN/DOT S.P. 4180 J. STEPS SHALL BE ORIENTED ON THE UPSTREAM LEFT SIDE AS SHOWN.
7. ALL JOINTS TO BE GASKETED. REFER TO MN/DOT SPEC. 3726.
8. PROVIDE CONCRETE FILLETS TO FIT BOTTOM PORTION OF PIPE TO DIRECT FLOW TO OUTLET AT 1/4" PER FT. MIN. SLOPE. SHAPE CHANNELS TO HAVE SMOOTH ROUND INVERTS. DEPTH OF CHANNELS SHALL NOT BE LESS THAN 1/2 THE PIPE SIZE.
9. FOR WATER TIGHT SEAL REFER TO MN/DOT S.P. 4007 C.
10. DROP INLET USED FOR SAN. SEWER DROPS GREATER THAN 1.0 FT.
11. MAX. PIPE SIZE:
    24" FOR STRAIGHT THRU TO 135°
    18" FOR 90° BEND
12. DROP PIPE TO BE ENCASED IN GROUT IF FLEXIBLE PIPE, OR GRANULAR ENCASEMENT IF RIGID PIPE IS USED.



SECTION A–A



PLAN



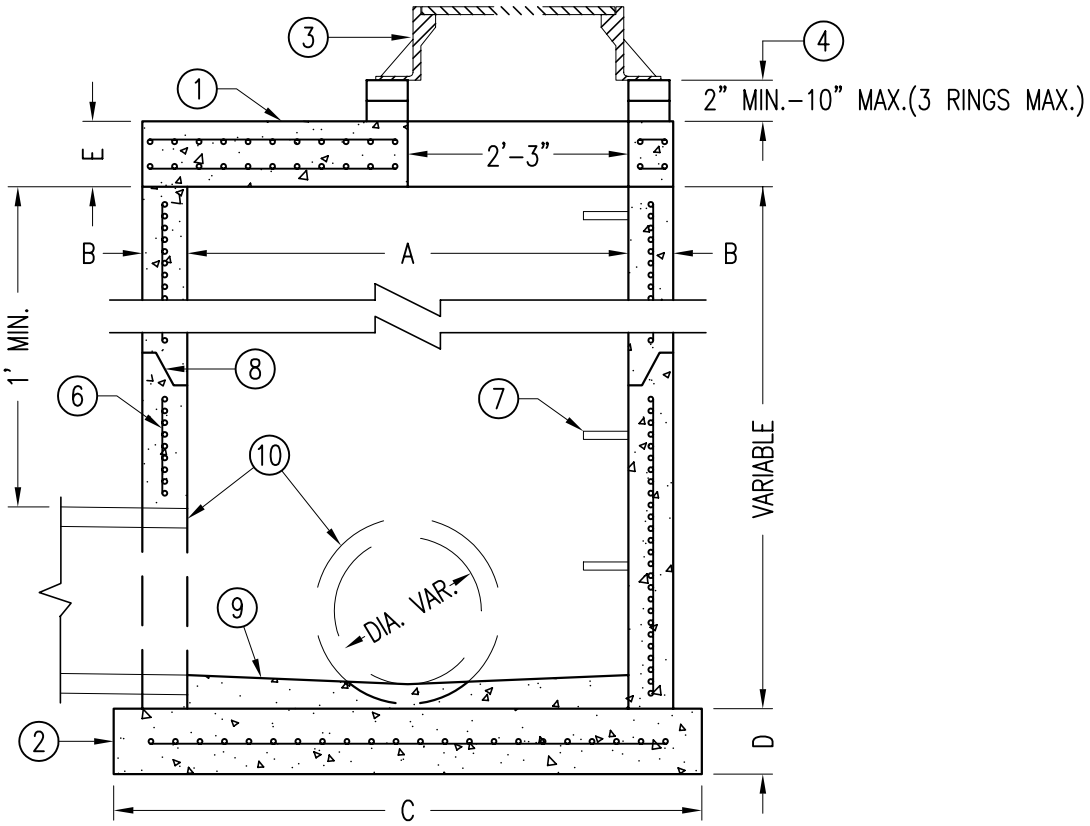
TYPE 3A FOR DROP–INLET

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

STRUCTURE TYPES 3 AND 3A (SANITARY SEWER)

ASST. CITY ENGINEER	DIRECTOR

SHT 1 OF 1 SHTS	DATE REVISED	PLATE NO.	REV.
	6/15/07	1–03	H



NOTES

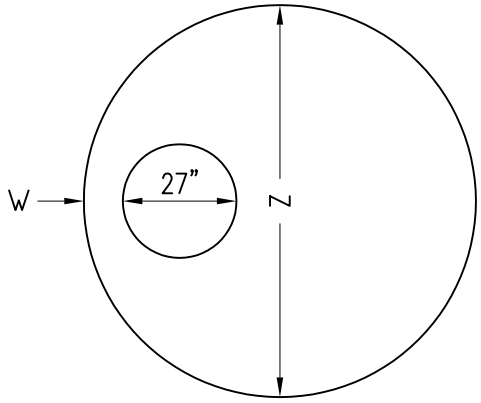
1. MANHOLE COVER SHALL CONFORM TO MN/DOT S.P. 4020 J.
2. MANHOLE BASE SHALL CONFORM TO MN/DOT S.P. 4011 E.
3. REFER TO PLANS AND S.D.P. 1–11 FOR CASTING REQUIRED. CASTING SHALL BE BOLTED TO CONCRETE IN FIELD APPLICATIONS.
4. ADJUSTING RINGS SHALL BE PER S.D.P. 1–12, AND BE FULLY MORTARED.
5. STRUCTURE SHALL BE PRECAST CONCRETE.
6. REINFORCING SHALL BE A MINIMUM OF A SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT IN EACH DIRECTION.
7. STEPS ARE SPACED AT 16" O.C. MAX. AND SHALL CONFORM TO MN/DOT S.P. 4180 J. STEPS SHALL BE ORIENTED ON THE UPSTREAM LEFT SIDE.
8. ALL JOINTS TO BE GASKETED. REFER TO MN/DOT SPEC. 3726.
9. PROVIDE CONCRETE FILLETS TO FIT BOTTOM PORTION OF PIPE TO DIRECT FLOW TO OUTLET AT 1/4" PER FT. MINIMUM SLOPE. MINIMUM CONCRETE THICKNESS AT LOWEST INVERT SHALL BE 1 1/2".
10. WATERTIGHT SEAL PER MN/DOT S.P. 4007 C. REQUIRED FOR SANITARY SEWER USE.

SEE SHEET 2 FOR MANHOLE DIMENSIONS

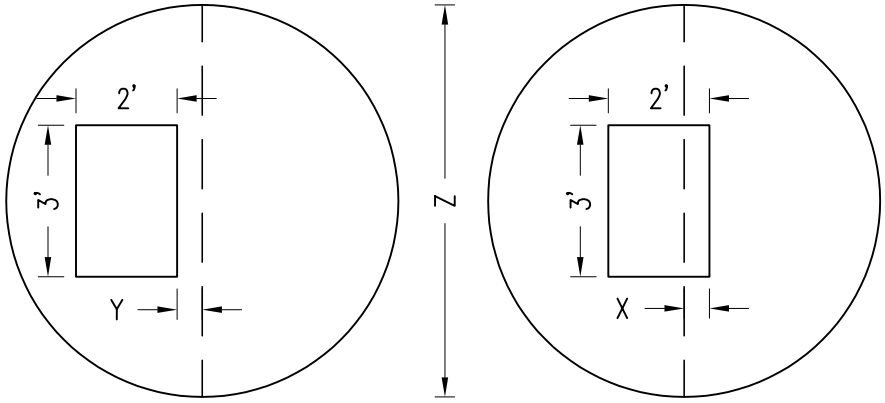
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

STRUCTURE TYPE 4 (XX in.)

ASST. CITY ENGINEER	DIRECTOR			
SHT 1 OF 2 SHTS	DATE REVISED 6/15/07	PLATE NO. 1–04	REV. G	



MANHOLE TOP SLAB



ALTERNATE TOP
SLAB FOR MANHOLE

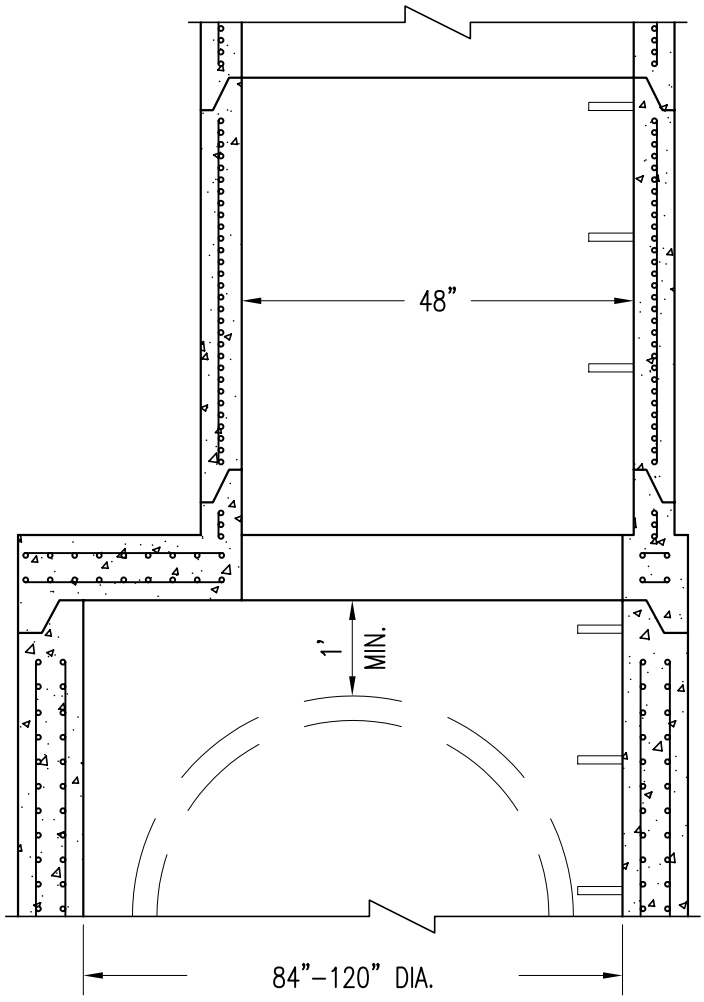
MH TOP SLAB				MANHOLE DIMENSIONS					MAX. PIPE SIZE	
W	X	Y	Z	A	B	C	D	E	135°–180°	90°
6"	9"	–	58"	48"	5"	64"	6"	6"	27"	18"
6"	6"	–	65"	54"	5.5"	72"	8"	8"	33"	21"
7"	3"	–	72"	60"	6"	78"	8"	8"	36"	24"
7"	0"	–	79"	66"	6.5"	85"	8"	8"	42"	30"
8"	–	3"	86"	72"	7"	92"	8"	8"	42"	33"
8"	–	6"	93"	78"	7.5"	100"	8"	8"	48"	36"
9"	–	9"	100"	84"	8"	106"	8"	8"	54"	42"
9"	–	12"	107"	90"	8.5"	114"	8"	8"	60"	42"
9"	–	15"	114"	96"	9"	120"	8"	8"	60"	42"
9"	–	18"	121"	102"	9.5"	127"	8"	8"	60"	48"
10"	–	21"	126"	108"	10"	132"	9"	12"	60"	54"
11"	–	24"	140"	120"	10"	146"	12"	12"	60"	60"

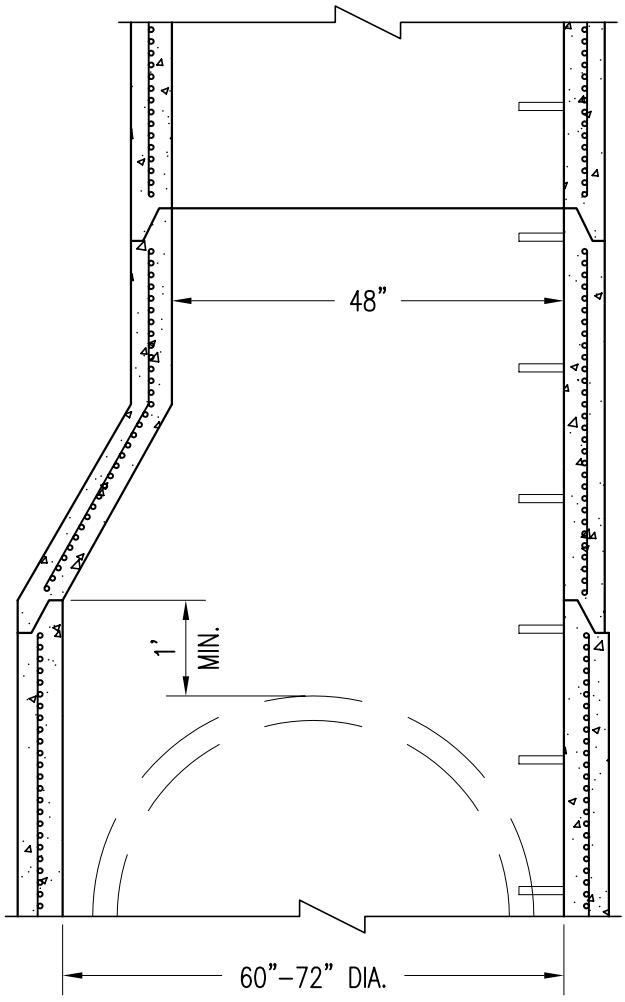
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

STRUCTURE TYPE 4 (XX in.) MANHOLE DIMENSIONS

ASST. CITY ENGINEER | DIRECTOR

SHT 2 OF 2 SHTS	DATE REVISED 3/22/06	PLATE NO. 1–04	REV. A





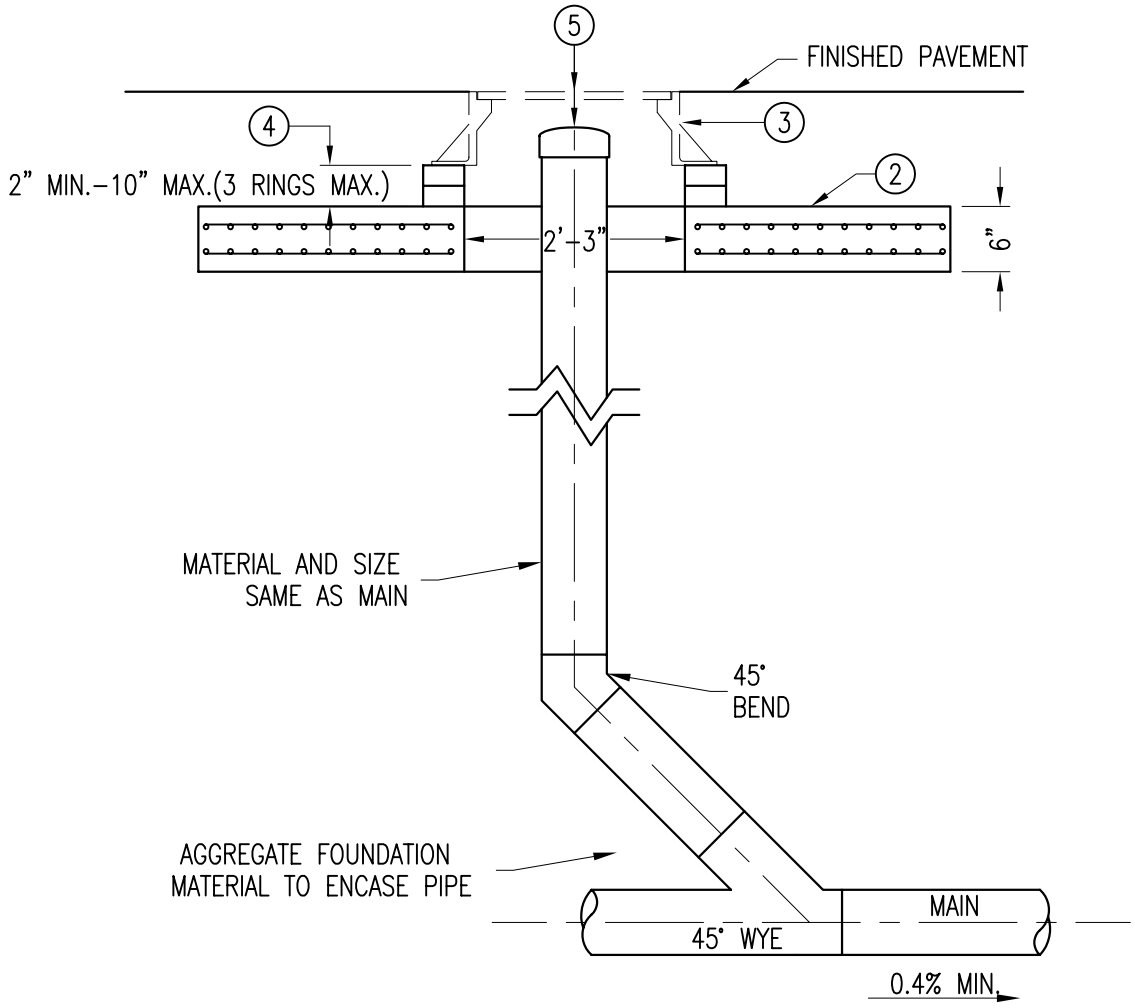
SEE CITY STANDARD PLATES 1–02 THRU
1–04 FOR MANHOLE DETAILS

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

STRUCTURE TYPE 5 (XX in.) REDUCTION MANHOLE

ASST. CITY ENGINEER	DIRECTOR

SHT 1 OF 1 SHTS	DATE REVISED 3/22/06	PLATE NO. 1–05	REV. B



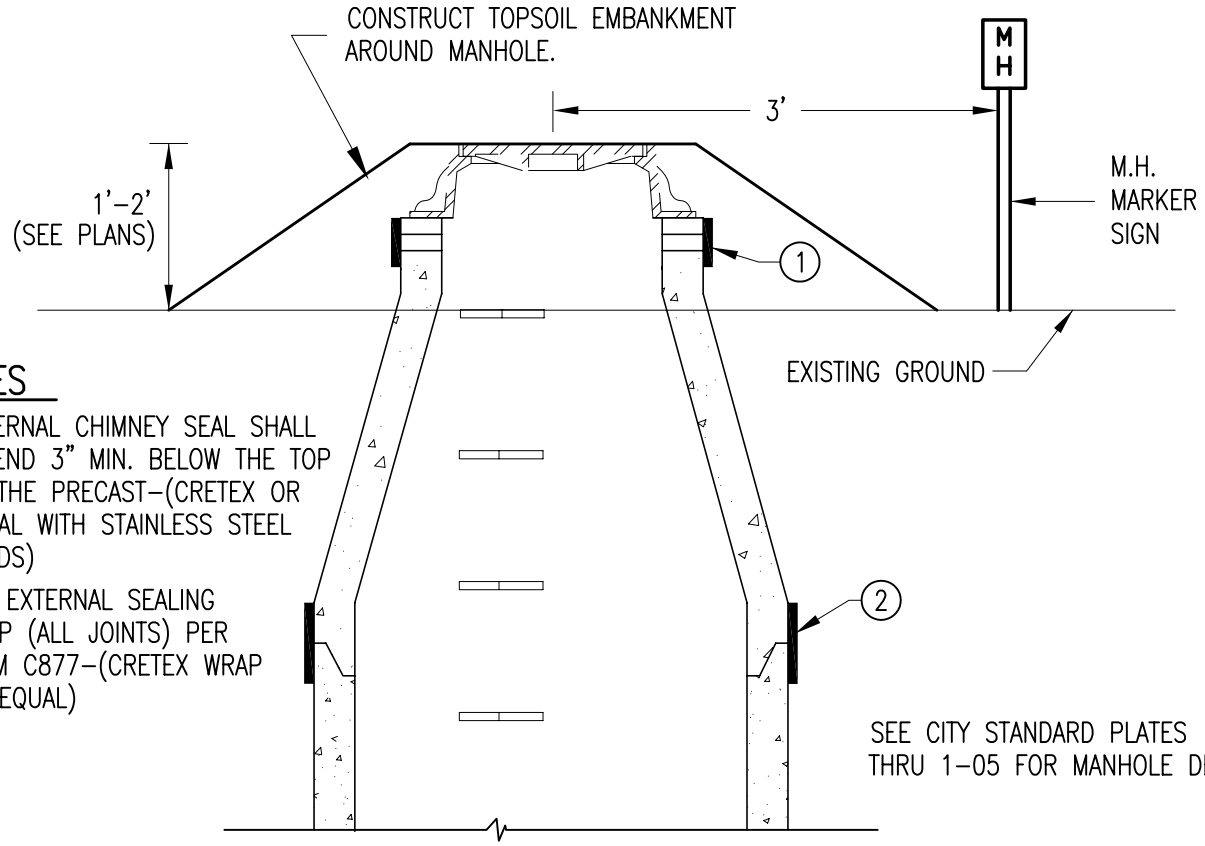
NOTES

1. 48" STRUCTURE SHALL BE USED WHENEVER THE CLEANOUT FALLS INTO PAVEMENT AREAS.
2. MANHOLE COVER SHALL CONFORM TO MN/DOT S.P. 4020 J.
3. REFER TO PLANS AND S.D.P. 1–11 FOR CASTING REQUIRED. CASTING SHALL BE BOLTED TO CONCRETE IN FIELD APPLICATIONS.
4. ADJUSTING RINGS SHALL BE PER S.D.P. 1–12, AND BE FULLY MORTARED.
5. MANHOLE COVER IS TO BE A MINIMUM OF 4" AND A MAXIMUM OF 6" BELOW THE FINISHED PAVEMENT GRADE.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

STRUCTURE TYPE 6 (CLEANOUT)

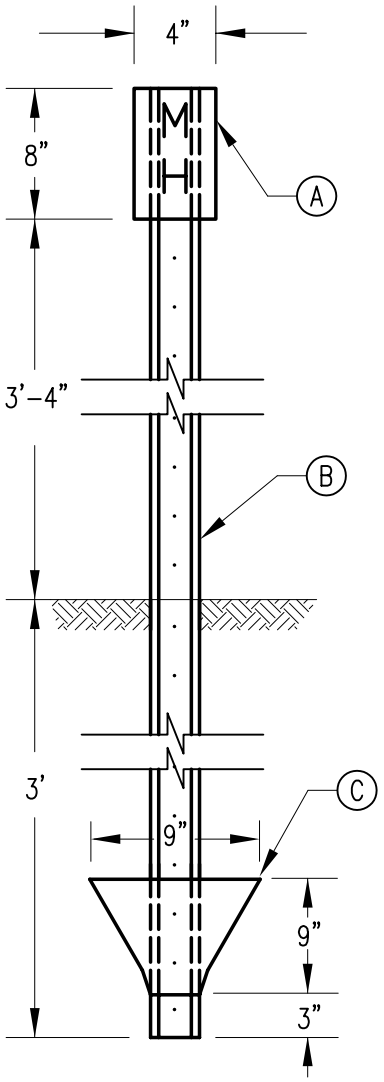
ASST. CITY ENGINEER	DIRECTOR			
SHT 1 OF 1 SHTS	DATE REVISED 6/15/07	PLATE NO. 1–06	REV. B	



NOTES

1. EXTERNAL CHIMNEY SEAL SHALL EXTEND 3" MIN. BELOW THE TOP OF THE PRECAST-(CRETEX OR EQUAL WITH STAINLESS STEEL BANDS)
2. 12" EXTERNAL SEALING WRAP (ALL JOINTS) PER ASTM C877-(CRETEX WRAP OR EQUAL)

SEE CITY STANDARD PLATES 1-03 THRU 1-05 FOR MANHOLE DETAILS.



NOTES

A. SHEET ALUMINUM SIGN BOLTED TO POST. SIGN SHALL READ "M.H." IN 2 INCH BLACK LETTERS ON WHITE REFLECTORIZED BACKGROUND.

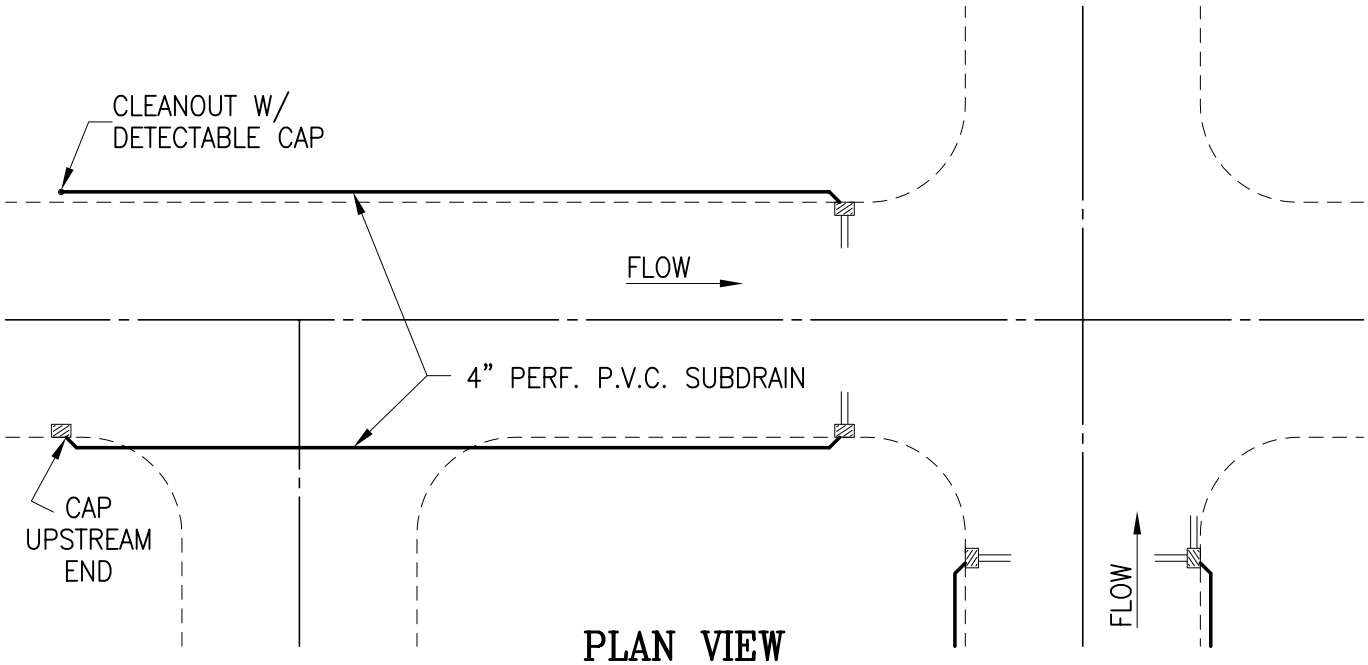
B. FLANGED CHANNEL SIGN POSTS SHALL BE A MINIMUM OF 2.75 POUNDS PER FOOT, AND SHALL MEET MN/DOT 3401.

C. 1/8" SHEET STEEL SHALL BE ASTM A1011, GRADE D SHALL BE BOLTED OR WELDED TO CHANNEL.

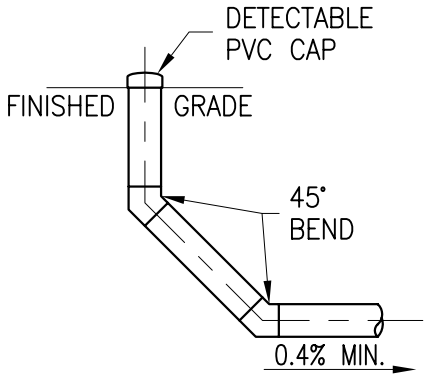
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

MANHOLE WATERPROOFING (NON-PAVED AREAS)

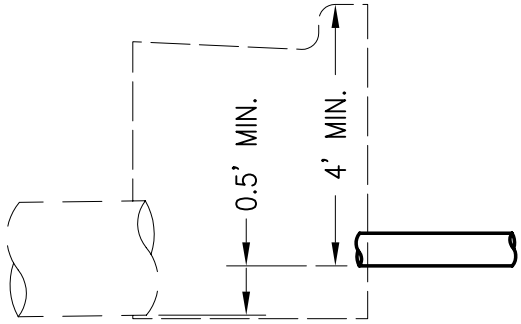
ASST. CITY ENGINEER	DIRECTOR			
SHT 1 OF 1 SHTS	DATE REVISED 3/22/06	PLATE NO. 1-07	REV. A	



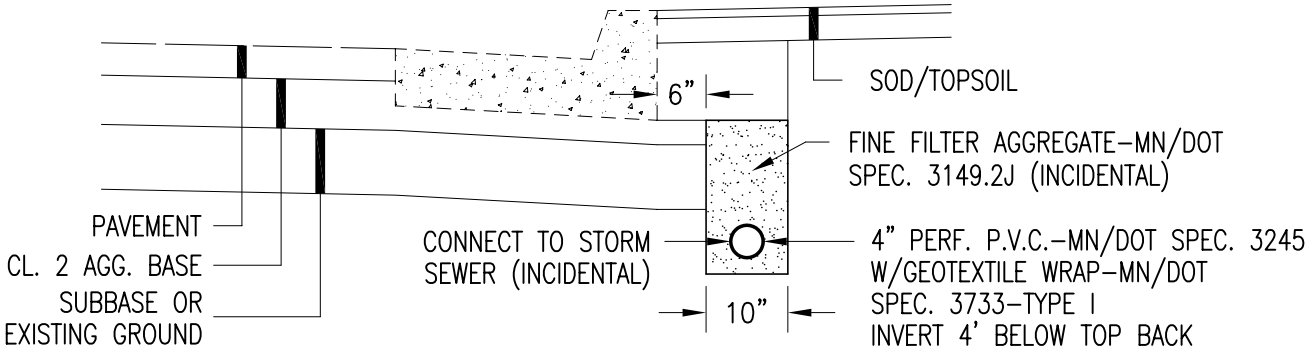
PLAN VIEW
EDGE SUBDRAIN CONNECTIONS



SUBDRAIN CLEANOUT



SUBDRAIN AT STRUCTURE

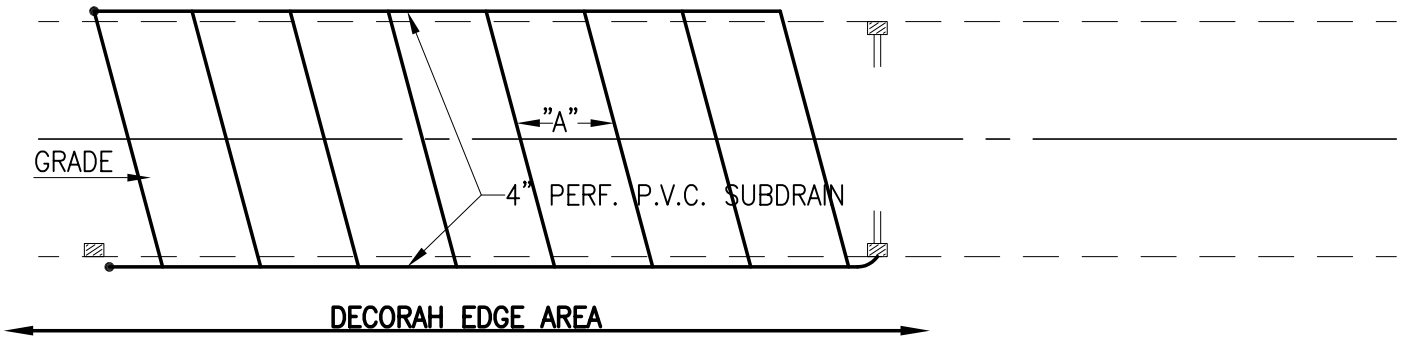


SECTION VIEW
EDGE SUBDRAIN DETAIL

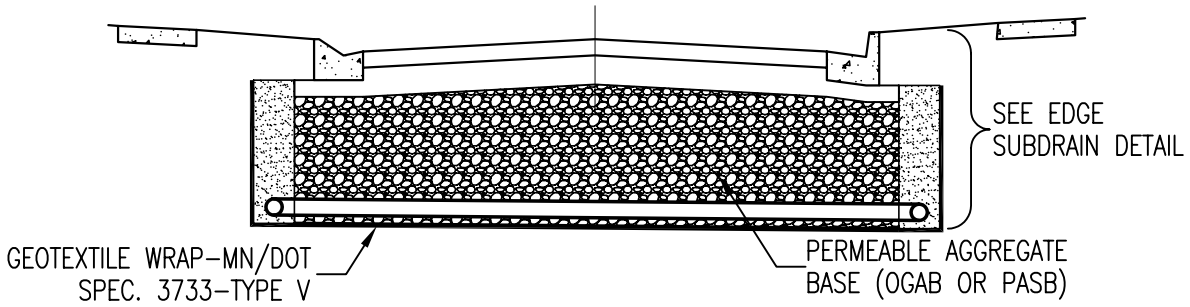
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

SUBSURFACE EDGE DRAINS

ASST. CITY ENGINEER	DIRECTOR			
SHT 1 OF 2 SHTS	DATE REVISED 6/15/07	PLATE NO. 1–08	REV. C	



PLAN VIEW
FULL ROADWAY SUBSURFACE DRAIN



SECTION VIEW
SUBSURFACE DRAIN

RECOMMENDED SPACING BETWEEN SUBDRAIN PIPES	
LONGITUDINAL GRADE	"A"
0% TO 3%	60'
3% TO 5%	40'
5% TO 10%	20'

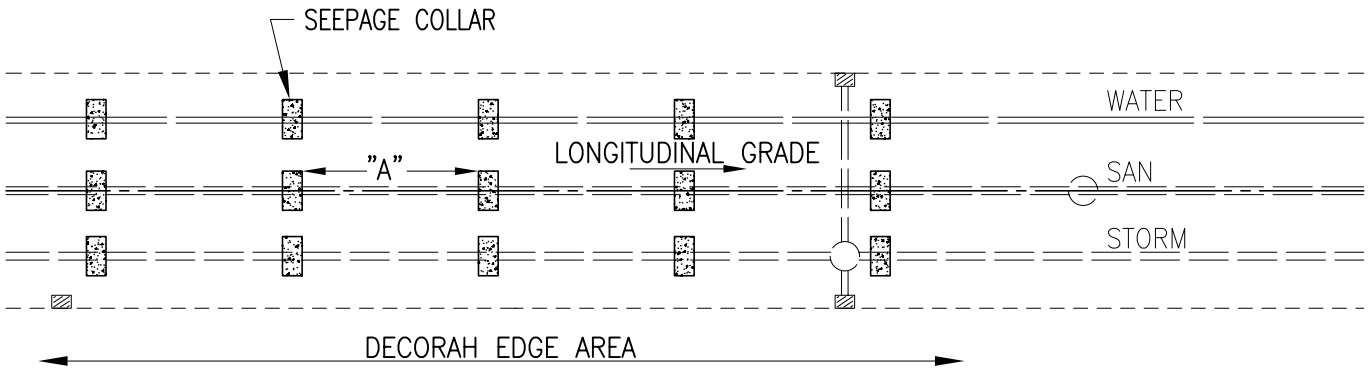
NOTES
FOR COLLECTOR OR ARTERIAL ROADWAYS

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

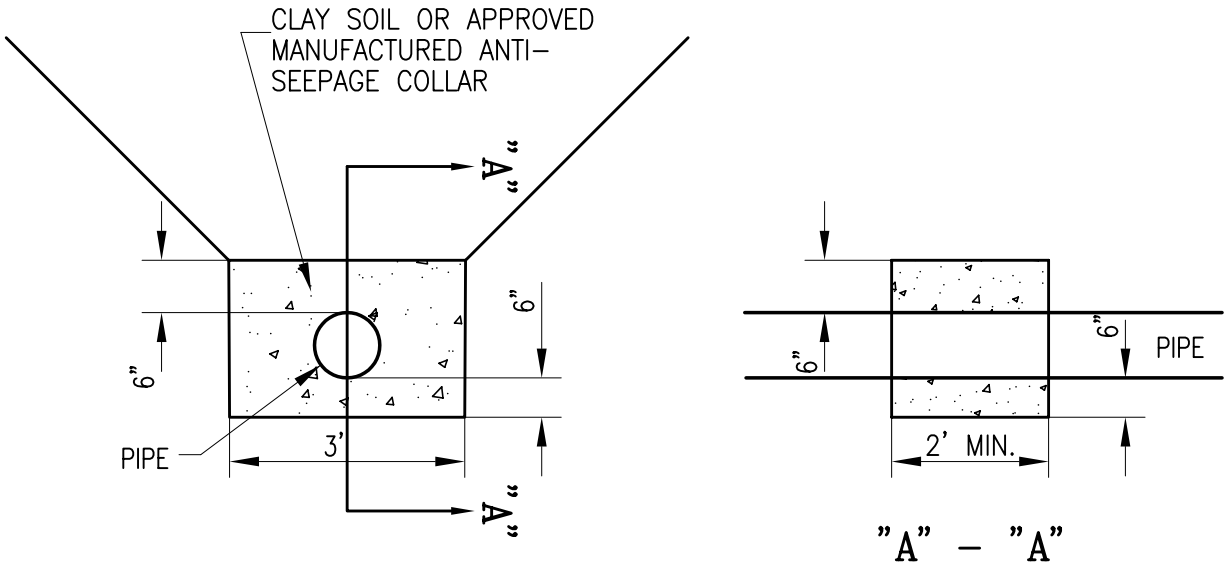
DECORAH EDGE ROADWAY DETAIL

ASST. CITY ENGINEER | DIRECTOR

SHT 2 OF 2 SHTS	DATE REVISED 6/15/07	PLATE NO. 1–08	REV. A



PLAN VIEW
UNDERGROUND UTILITIES



SECTION VIEW
SEEPAGE COLLAR

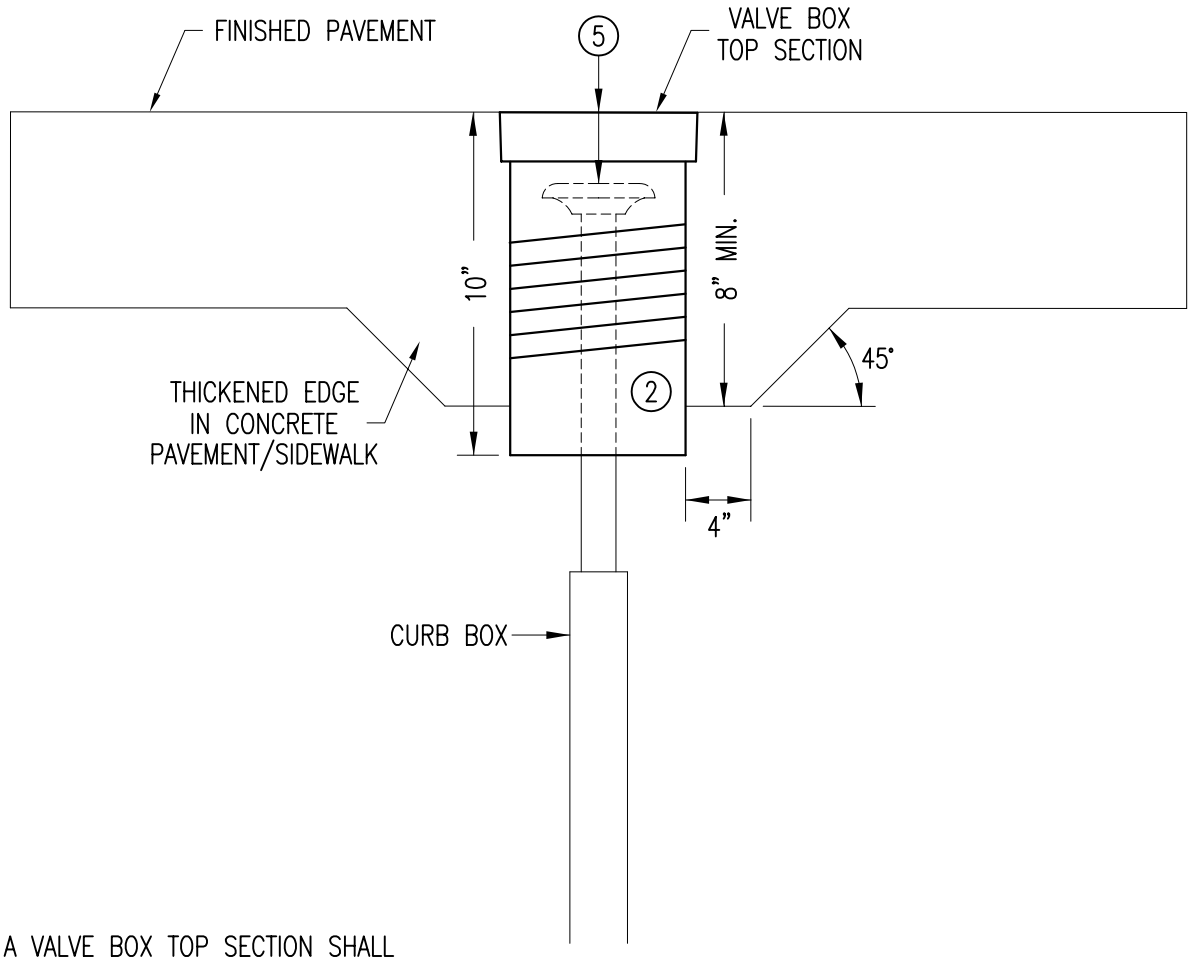
RECOMMENDED SPACING BETWEEN SEEPAGE COLLAR	
LONGITUDINAL GRADE	"A"
0% TO 3%	100'
3% TO 5%	50'
5% TO 10%	25'

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

DECORAH EDGE UTILITY DETAIL

ASST. CITY ENGINEER | DIRECTOR

SHT 1 OF 1 SHTS	DATE REVISED 6/15/07	PLATE NO. 1-09	REV. A



1. A VALVE BOX TOP SECTION SHALL BE USED AS A CURB BOX COVER WHENEVER THE CURB BOX FALLS INTO NEW OR REPLACED CONCRETE SIDEWALK, DRIVE APPROACH, OR BITUMINOUS PAVEMENT AREAS.

(2) VALVE BOX TOP SECTION SHALL BE OF THE SCREW TYPE, HAVE A MINIMUM INSIDE SHAFT DIAMETER OF 5 1/4", AND HAVE A CAP WITH THE WORD "WATER" PLAINLY MARKED ON TOP.

3. IN ALL RESPECTS THE VALVE BOX SHALL BE EQUAL TO TYLER/UNION–10T–UPC#144939.

4. VALVE BOX COVER SHALL BE OF THE LOCKING TYPE, EQUAL TO A TYLER/UNION UPC#145462.

(5) CURB BOX RISER CAP IS TO BE A MINIMUM OF 4" AND A MAXIMUM OF 6" BELOW THE FINISHED PAVEMENT GRADE.

6. CURB BOX RISER ADJUSTMENT, AND THE FURNISHING & INSTALLATION OF VALVE BOX TOP SECTION AND COVER, SHALL BE INCLUDED IN PAYMENT FOR CURB BOX COVER.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

CURB BOX COVER

ASST. CITY ENGINEER	DIRECTOR		
SHT 1 OF 1 SHTS	DATE REVISED 6/15/07	PLATE NO. 1–10	REV. B

CASTINGS – STRUCTURE TYPE 1

TYPE	DESCRIPTION	CASTING NUMBER	LID/GRATE	REMARKS
A	2' CURB INLET FRAME GRATE & BOX	R–3010	TYPE R–DIAGONAL	FOR M.H. TYPE STRUCTURE (36" DIA. BASE)
B	3' CURB INLET FRAME GRATE & BOX	R–3067–7002	TYPE R–DIAGONAL	FISH LOGO–3779
C	3' DRIVEWAY CURB INLET FRAME	R–3290–A	TYPE C	USE WHERE DRIVEWAY PRECLUDES USE OF TYPE B IN B. CURB
D	3' DRIVEOVER CURB INLET FRAME & GRATE	R–3510	TYPE C	USE WHERE DRIVEWAY PRECLUDES USE OF TYPE B IN D.O. CURB
V	3' CURB INLET FRAME GRATE & BOX	R–3067–7002	TYPE V	USE WHEN STREET GRADE EXCEEDS 2% FISH LOGO–3779

CASTINGS – OTHER STRUCTURES

	TYPE	DESCRIPTION	CASTING NUMBER	LID/GRATE	REMARKS
LIDS	1	9" FRAME AND COVER NON–ROCKING	R–1710	TYPE B LID	W/2 CONCEALED PICK HOLES
	2	9" FRAME & COVER	R–1916–C	SELF–SEALING BOLTED LID	TO BE USED IN FLOOD PRONE OR OFF STREET AREAS & IN CONCRETE PAVING
	3	6 1/2" FRAME & COVER NON–ROCKING	R–1700–A	TYPE B LID	NOT FOR USE ON NEW CONSTRUCTION, W/2 CONCEALED PICK HOLES
	3A	7" FRAME AND COVER NON–ROCKING	R–1740–B	TYPE B LID	TO BE USED FOR P.R.V. MANHOLES
GRATES	4	9" FRAME AND GRATE NON–ROCKING	R–2533	TYPE A GRATE	PAVEMENT DRAIN
	5	9" BEEHIVE FRAME	R–2560–D3	7" GRATE BEEHIVE	USE ONLY WHEN TYPES 6 OR 7 CANNOT BE USED
	6	DITCH GRATE–STOOL TYPE	R–4341–A	STOOL GRATE	HEAVY DUTY
	7	DITCH GRATE–STOOL TYPE	R–4342	STOOL GRATE	LIGHT DUTY
	8	POND SKIMMER GRATE	*	1/2" STEEL PLATE	HOT DIPPED GALVANIZED

ALL CASTING NUMBERS SHOWN ARE NEENAH FOUNDRY CATALOG NUMBERS. APPROVED EQUAL MAY BE SUBSTITUTED.

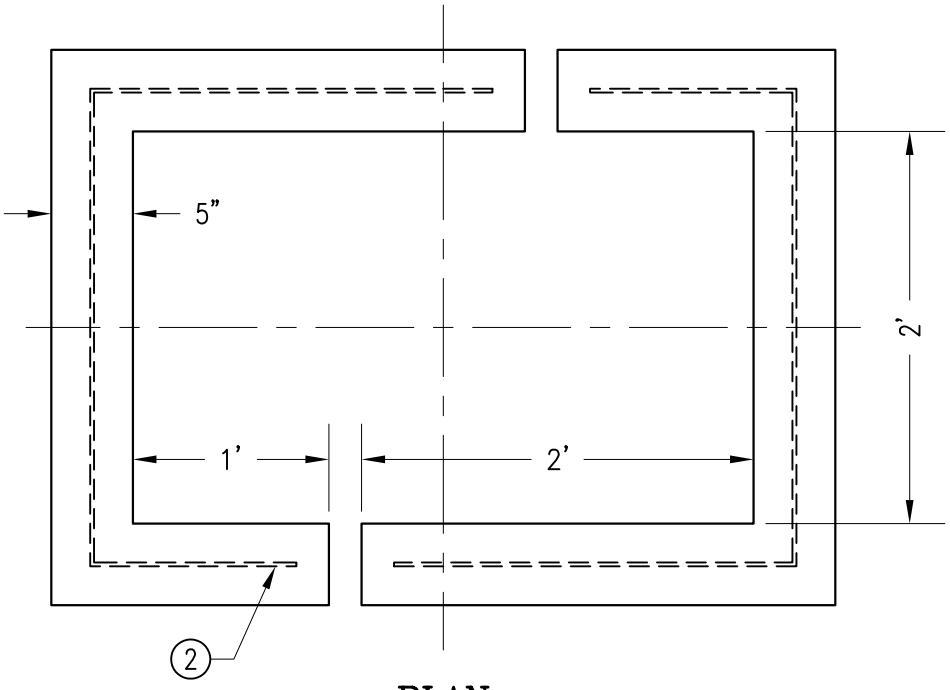
* HAALA INDUSTRIES CASTING, OR AN APPROVED EQUAL MAY BE SUBSTITUTED.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

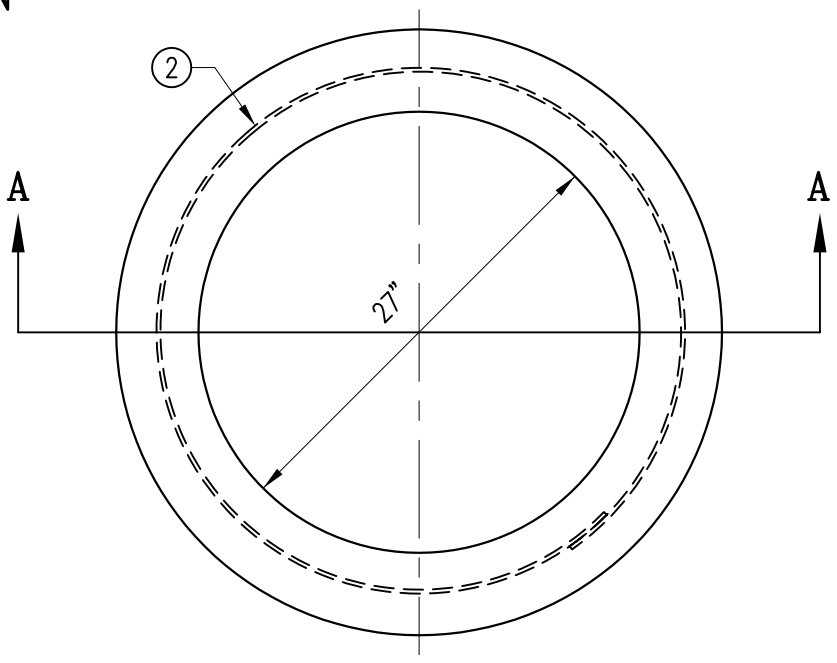
CASTING SCHEDULE

Douglas M. Nelson — ASST. CITY ENGINEER
Russell W. Fries — DIRECTOR

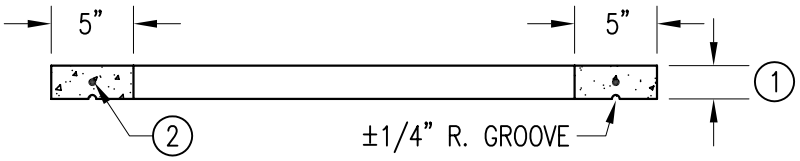
SHT 1 OF 1 SHTS	DATE REVISED 3/22/06	PLATE NO. 1–11	REV. G



PLAN



PLAN



SECTION A–A

NOTES

(1) VARIABLE THICKNESS OF 2” MIN. AND 6” MAX.

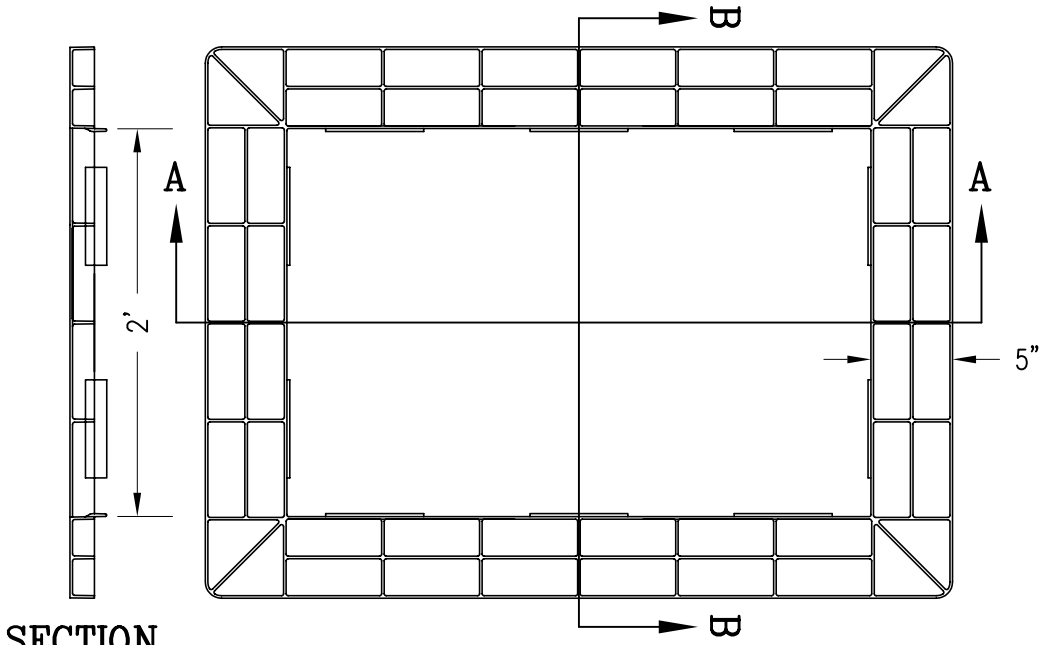
(2) REINFORCEMENT SHALL BE A SINGLE HOOP OF #8 GAGE STEEL WIRE

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

CONCRETE STRUCTURE ADJUSTING RINGS

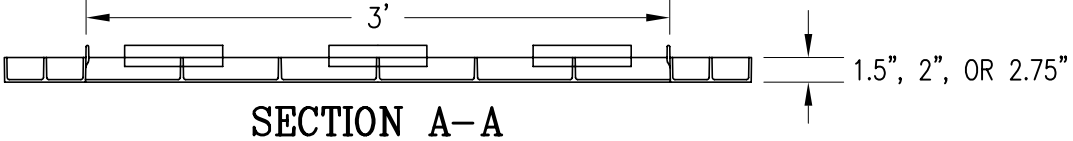
Douglas Nelson — ASST. CITY ENGINEER
Russell W. Fries — DIRECTOR

SHT 1 OF 3 SHTS	DATE REVISED 3/22/06	PLATE NO. 1–12	REV. C

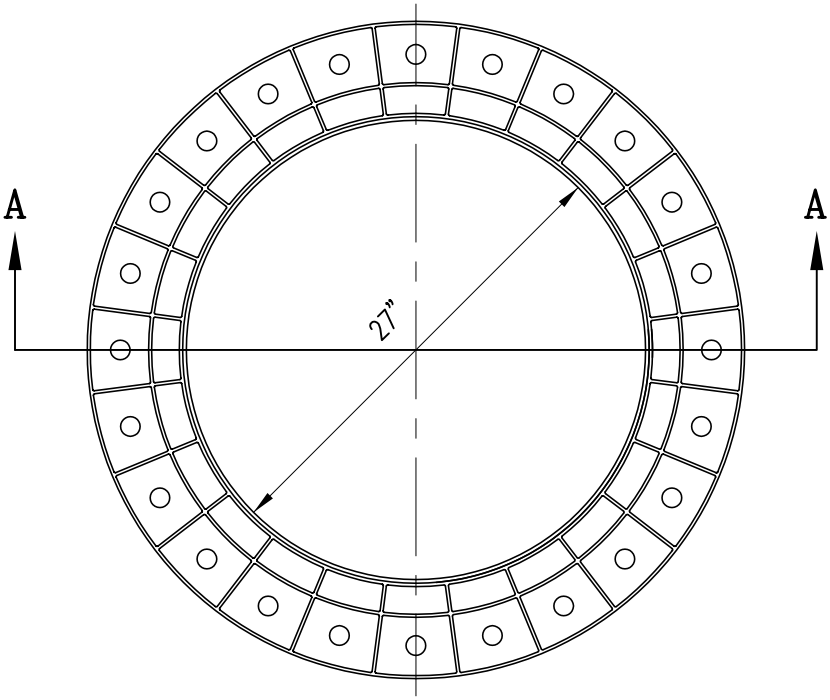


SECTION B–B

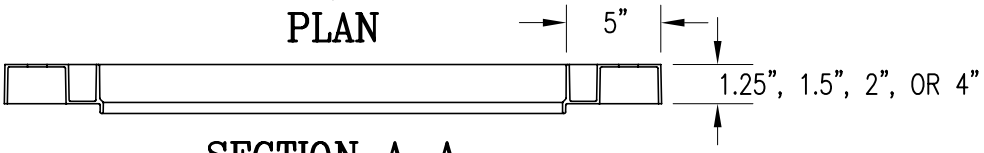
PLAN



SECTION A–A



PLAN



SECTION A–A

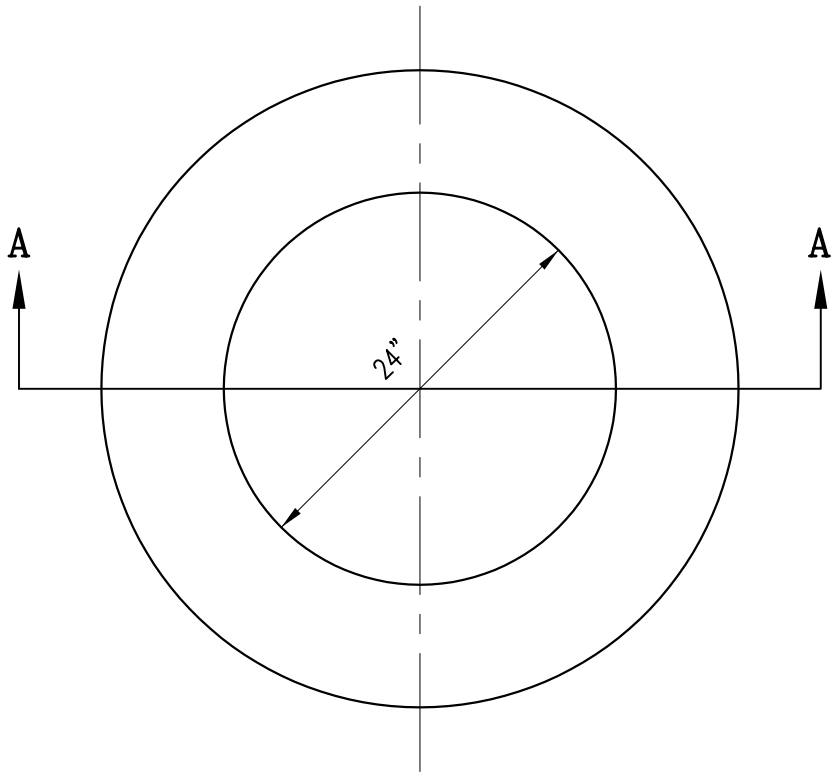
NOTES

(1) SLEEVE SHALL BE MOLDED FROM HIGH DENSITY POLYETHYLENE MATERIAL AS DEFINED IN ASTM D1248.

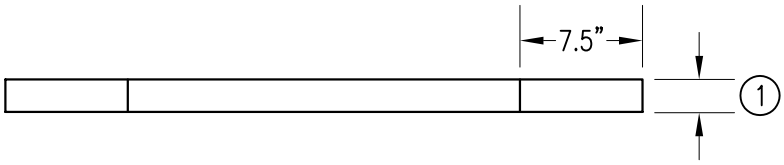
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

POLYETHYLENE STRUCTURE ADJUSTING RINGS

ASST. CITY ENGINEER	DIRECTOR			
SHT 2 OF 3 SHTS	DATE REVISED 3/22/06	PLATE NO. 1–12	REV. A	



PLAN



SECTION A–A

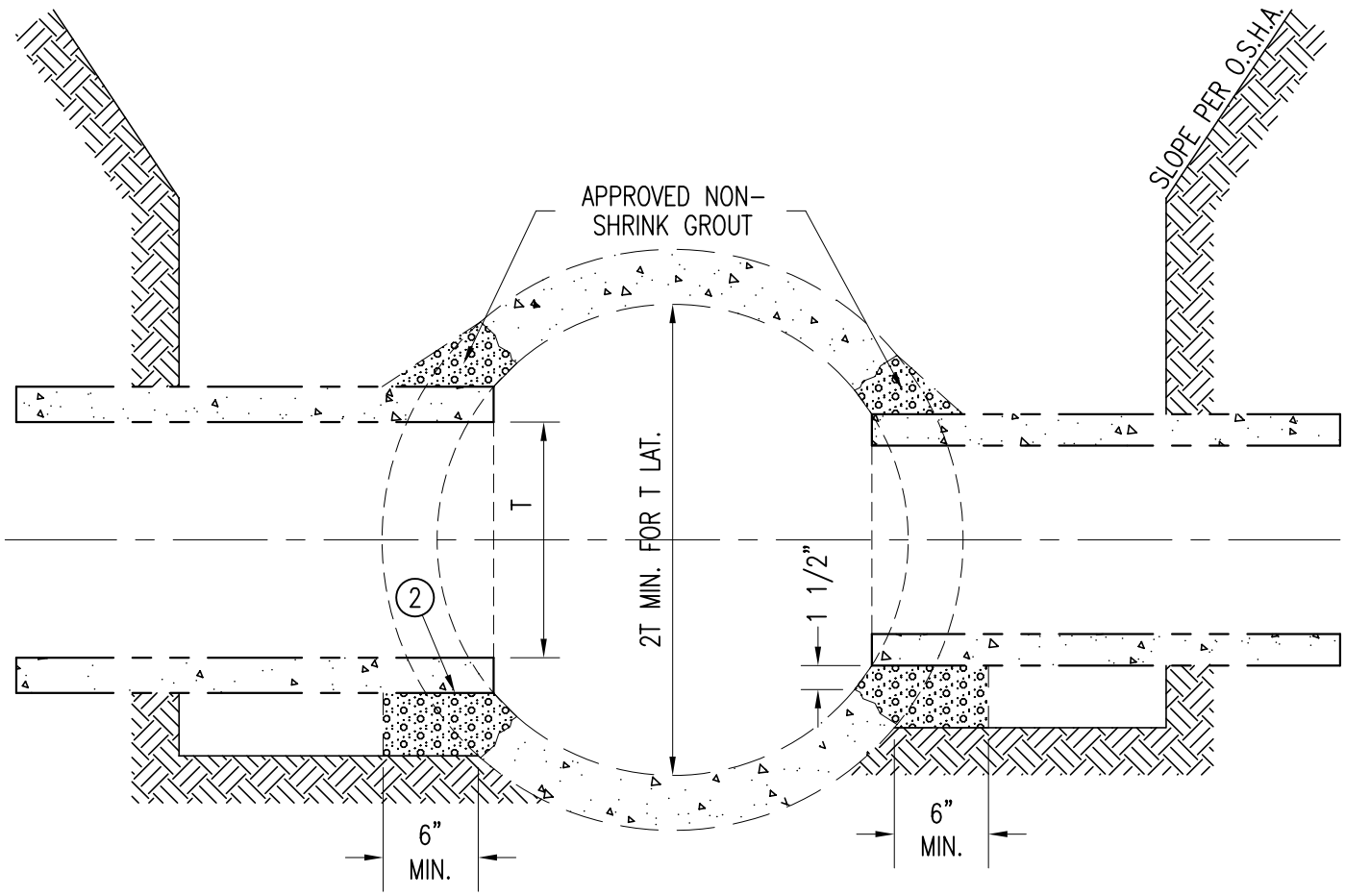
NOTES

1. VARIABLE THICKNESS OF 1/2" TO 3" IN INCREMENTS OF 1/2".
2. MATERIAL SHALL MEET ASTM 642–90 FOR DENSITY.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

RUBBER STRUCTURE ADJUSTING RINGS

ASST. CITY ENGINEER	DIRECTOR			
SHT 3 OF 3 SHTS	DATE REVISED 3/22/06	PLATE NO. 1–12	REV. A	



NOTES

1. MANHOLE REQUIRED WHERE LATERAL PIPE OR CONNECTING PIPE EXCEEDS 1/2 MAIN PIPE DIAMETER.

(2) LATERAL PIPE SHALL NOT EXTEND INTO THE CROSS SECTION OF MAIN PIPE BEYOND THAT REQUIRED FOR FULL WALL SUPPORT.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

BLIND–TIE FIELD CONNECTION FOR R.C.P. STORM SEWER

ASST. CITY ENGINEER	DIRECTOR			
SHT 1 OF 1 SHTS	DATE REVISED 3/22/06	PLATE NO. 1–13	REV. B	